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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/24/2000

Ron Dembo

11483-80

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7590

03/14/2006

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EXAMINER

COLBERT, ELLA

ART UNIT

PAPER NUMBER

3624

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/718,500	<b>Applicant(s)</b> DEMBO ET AL	
	<b>Examiner</b> Ella Colbert	<b>Art Unit</b> 3624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 46-67 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 46-48, 51, 52, 54-57, 60, 61, 63-65 and 67 is/are rejected.
- 7) ☒ Claim(s) 49, 53, 58, 62 and 66 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/12/05</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 46-49, 51-58, and 60 -67 are pending. Claims 49 and 58 have been amended and claims 50 and 59 have been cancelled in this communication filed 12/12/05 entered as Response to Rule 105 required information and IDS.
2. The IDS filed 12/12/05 has been considered and entered.
3. The Drawings submitted 08/01/05 have been reviewed.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 46-48, 51, 52, 54-57, 60, 61, 63-65, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over (US 6,003,018) Michaud et al, hereafter Michaud in view of (US 5,884,287) Edesess.

As per claims 46, 55, and 64, Michaud teaches, A non-variance-based method of determining an optimal portfolio from a plurality of portfolios wherein the steps of the method are performed by a computer, a user directing the computer to compute the optimal portfolio, the method comprising the steps of: a. computing a mark-to-future value for each of the plurality of portfolios, wherein the mark-to-future value for a portfolio is calculated from mark-to-future values for the instruments in the portfolio, and wherein the mark-to-future value for an instrument is a simulated expected value for the instrument under a future scenario at a time point (col. 2, lines 28-67 and col. 3, line 39-

col. 4, line 31); and c. computing one or more performance measures for the portfolio, each performance measure calculated as a function of at least one of the upside and downside values for the portfolio (col. 1, lines 34-66 and Fig. 1A). Michaud failed to teach, b. disaggregating the portfolio such that the portfolio is characterized by an upside value and a downside value, wherein the upside value is the expected value, over a plurality of future scenarios, each with an associated probability of future occurrence, of the unrealized gains of the portfolio calculated as the absolute differences between the mark-to-future value of the portfolio and a benchmark value where the mark-to-future value of the portfolio exceeds the benchmark value, and wherein the downside value is the expected value, over the plurality of future scenarios, each with an associated probability of future occurrence, of the unrealized losses of the portfolio calculated as the absolute differences between the mark-to-future value of the portfolio and the benchmark value where the benchmark value exceeds the mark-to-future value of the portfolio. Edesess teaches, disaggregating the portfolio such that the portfolio is characterized by an upside value and a downside value, wherein the upside value is the expected value, over a plurality of future scenarios, each with an associated probability of future occurrence, of the unrealized gains of the portfolio calculated as the absolute differences between the mark-to-future value of the portfolio and a benchmark value where the mark-to-future value of the portfolio exceeds the benchmark value, and wherein the downside value is the expected value, over the plurality of future scenarios, each with an associated probability of future occurrence, of the unrealized losses of the portfolio calculated as the absolute differences between the mark-to-future value of the

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portfolio and the benchmark value where the benchmark value exceeds the mark-to-future value of the portfolio(col. 5, line 23-col. 6, line 10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to disaggregating the portfolio such that the portfolio is characterized by an upside value and a downside value, wherein the upside value is the expected value, over a plurality of future scenarios, each with an associated probability of future occurrence, of the unrealized gains of the portfolio calculated as the absolute differences between the mark-to-future value of the portfolio and a benchmark value where the mark-to-future value of the portfolio exceeds the benchmark value, and wherein the downside value is the expected value, over the plurality of future scenarios, each with an associated probability of future occurrence, of the unrealized losses of the portfolio calculated as the absolute differences between the mark-to-future value of the portfolio and the benchmark value where the benchmark value exceeds the mark-to-future value of the portfolio and to modify in Michaud in view of Michaud's teachings of portfolio optimization and efficient frontiers and because such a modification would allow Michaud to have a method of optimization that is known as quadratic programming with a curve that has come known as the "efficient frontier," and the linear combinations of assets represent the points on the frontier as "efficient portfolios".

With respect to claim 55, Michaud teaches, c. determining at least one efficient portfolio from the plurality of portfolios, wherein each efficient portfolio is a portfolio in which the upside value therefor is maximized with the downside value therefor not exceeding a limit of one or more specified limits (col. 5, line 37-col. 6, line 16). Michaud

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failed to teach, d. obtaining a utility function provided as input, and selecting an optimal portfolio from the at least one efficient portfolio that maximizes the utility function.

Edesess teaches, obtaining a utility function provided as input, and selecting an optimal portfolio from the at least one efficient portfolio that maximizes the utility function (col. 4, line 45-col. 6, line 33 and Fig. 3B). It would have been obvious to one having ordinary skill in the art at the time the invention was made to obtain a utility function provided as input, and selecting an optimal portfolio from the at least one efficient portfolio that maximizes the utility function and to modify in Michaud because such a modification would allow Michaud to have a graphical representation of portfolio optimization with optimum allocation for the initial formulations of the scenarios.

With respect to claim 64, Michaud teaches, c. computing one or more performance measures for the portfolio, each performance measure calculated as a function of at least one of the upside and downside values for the portfolio (col. 2, line 28-col. 3, line 3).

As per claims 56, and 65, Michaud teaches, the step of computing the benchmark value by selecting a benchmark instrument or benchmark portfolio, and calculating the mark-to-future value of the selected benchmark instrument or benchmark portfolio (col. 1, line 16-col. 2, line 67 and col. 3, line 59-col. 4, line 65).

As per claims 48 and 57, Michaud teaches, wherein the utility function is:  $\text{expected utility} = (\text{upside value}) - (\text{downside value})$ , where  $\gamma$  is a constant indicative of a level of risk aversion (col. 4, line 61-col. 5, line 36).

As per claims 51 and 60, Michaud teaches, wherein the determining step comprises solving a mathematical program that incorporates the utility function (col. 1, line 16-col. 2, line 25).

As per claims 52 and 61, Michaud teaches, further comprising the step of determining a price for portfolio insurance associated with the optimal portfolio by pricing a security having payoffs that match the unrealized losses of the optimal portfolio (col. 2, lines 28-60).

As per claims 54 and 63, Michaud teaches, further comprising the step of determining a price for a new security consistent with the optimal portfolio, the new security having a plurality of mark-to-future values associated therewith (col. 5, line 37-col. 6, line 16).

As per claim 67, Michaud teaches, The method of claim 64, further comprising the steps of: repeating steps (a) through (c) for each portfolio in a plurality of Portfolios (col. 2, lines 28-67, col. 3, line 39-col. 4, line 31); ordering the plurality of portfolios according to at least one of the one or more performance measures (col. 4, line 66-col. 5, line 36); and selecting a portfolio from the ordered portfolios (col. 4, line 43-60).

***Allowable Subject Matter***

6. Claims 49, 53, 58, 62, and 66 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not suggest or disclose in claims 49 and 58 the formula for solving a linear program for the current mark-to-market values of securities, a mark-to-future values, subjective prior scenario probabilities, benchmark growth rates, position sizes, lower and upper position limits, the portfolio unrealized loss or downside, the portfolio unrealized gain or upside, claims 53 and 62 the formula for determining the price for portfolio insurance, and claim 66, the upside value  $- \lambda$  (downside value), where  $\lambda$  is a constant indicative of a level of risk aversion.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gullen et al (US 6,799,167) disclosed portfolio benchmarking.

### ***Inquiries***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ella Colbert whose telephone number is 571-272-6741. The examiner can normally be reached on Tuesday-Thursday, 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Millin can be reached on 571-272-6747. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



E. Colbert  
Primary Examiner  
March 4, 2006